

**Listing Of The Claims**

1. (Previously Amended) A method for adjusting the optical properties of an anti-reflective coating (ARC) layer comprising the steps of:

providing a preprocessed semiconductor substrate having a  $\text{SiN}_x$  or a polysilicon layer on a top surface;

depositing a dielectric ARC layer on said  $\text{SiN}_x$  or said polysilicon layer wherein said dielectric ARC layer is deposited of a material selected from the group consisting of  $\text{SiO}_2$  and  $\text{SiONH}$ ; and

annealing said dielectric ARC layer deposited on said semiconductor substrate at a temperature of at least  $400^\circ\text{C}$ .

2. (Previously Amended) A method for adjusting the optical properties of an anti-reflective coating layer according to claim 1 wherein said dielectric ARC layer deposited is  $\text{SiONH}$ .

3. - 4. (Cancelled)

5. (Previously Amended) A method for adjusting the optical properties of an anti-reflective coating layer according to claim 1, wherein a gas used in said annealing process is  $\text{O}_2$ .

6. (Previously Amended) A method for adjusting the optical properties of an anti-reflective coating layer according to claim 1, wherein a gas used in said annealing process is  $N_2$ .

7. (Previously Amended) A method for adjusting the optical properties of an anti-reflective coating layer according to claim 1, wherein a gas used in said annealing process is a mixture of  $O_2$  and  $N_2$ .

8. (Cancelled)

9. (Original) A method for adjusting the optical properties of an anti-reflective coating layer according to claim 1 further comprising the step of annealing said dielectric anti-reflective coating layer at a temperature between about  $400^{\circ}C$  and about  $1,000^{\circ}C$ .

10. (Original) A method for adjusting the optical properties of an anti-reflective coating layer according to claim 1 further comprising the step of annealing said dielectric anti-reflective coating layer for a time period between about 1 min. and about 30 min.

11. (Previously Amended) A method for adjusting the optical properties of an anti-reflective coating layer according to claim 1 further comprising the step of annealing said dielectric anti-reflective coating layer for a time period between about 3 min. and about 5 min.

12. (Previously Amended) A method for adjusting the optical properties of an anti-reflective coating layer according to claim 1 further comprising the step of adjusting said optical properties of the dielectric anti-reflective coating layer to a refractive index (n) between about 2.0 and about 2.5, and an extinction coefficient (k) between about 0.2 and about 0.8.

13. (Previously Amended) A method for adjusting the extinction coefficient (k) of a dielectric anti-reflective coating layer by the steps of:

providing a  $\text{SiN}_x$  or polysilicon layer covered semiconductor substrate;

depositing a dielectric anti-reflective coating layer of a material selected from the group consisting of  $\text{SiO}_2$  and  $\text{SiONH}$  on top of said  $\text{SiN}_x$  or said polysilicon layer; and

heating said semiconductor substrate to a temperature between about 400°C and about 1,000°C in an environment that comprises at least one of N<sub>2</sub> or O<sub>2</sub>.

14. (Previously Amended) A method for adjusting the extinction coefficient (k) of a dielectric anti-reflective coating layer according to claim 13 further comprising the step of heating said semiconductor substrate for a length of time sufficient to vary the extinction coefficient of said dielectric anti-reflective coating layer by at least 10%.

15. (Original) A method for adjusting the extinction coefficient (k) of a dielectric anti-reflective coating layer according to claim 13 further comprising the step of heating said semiconductor substrate for a length of time between about 1 min. and about 30 min.

16. (Original) A method for adjusting the extinction coefficient (k) of a dielectric anti-reflective coating layer according to claim 13 further comprising the step of heating said semiconductor substrate for a length of time between about 3 min. and about 5 min.

U.S.S.N. 09/761,486

17. (Previously Amended) A method for adjusting the extinction coefficient (k) of a dielectric anti-reflective coating layer according to claim 13 further comprising the step of heating said semiconductor substrate to a temperature between 400°C and 700°C in an environment of O<sub>2</sub>.